

FISHES OF SOME SOUTH CAROLINA COASTAL PLAIN STREAMS

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DISTRIBUTION of the freshwater fishes in the Ashepoo, Combahee, Broad, and New River drainages of southeastern South Carolina was studied from 1956 through 1960. These systems are in the coastal plain between Edisto and Savannah River drainages in parts of Allendale, Bamberg, Barnwell, Beaufort, Colleton, Hampton, and Jasper counties. Ashepoo and Combahee drain into St. Helena Sound, Broad drains into Port Royal Sound, and New into Tybee Roads. Drainage areas of the rivers in square miles are: Ashepoo, 385; Combahee, 1,356; Broad, 727; and New, 284; for a total of 2,752 square miles or 1,761,280 acres (communication from Walter M. Bell, Corps of Engineers, Charleston, South Carolina).

The general course of these rivers is to the southeast. For most of their lengths they flow over deposits of Tertiary age, but near their mouths they pass over sands and clays of Pleistocene or Recent age. At the headwaters of the Combahee the topography is somewhat rolling, but becomes flat a few miles southeastward and remains so, for the most part, all the way to the coast.

This region is of considerable interest biologically, as it has a rich flora and fauna and is largely unspoiled by man. Much of the land is in the possession of large land owners who have been good guardians of our natural resources. This furnishes an excellent comparison with areas not so well managed. Productive farms are scattered throughout; and a great portion of the territory is forested, some quite densely, making the pulp and timber industry of great importance. There is little domestic or industrial pollution. The generally level lands lend themselves easily to good soil conservation practices, and as a consequence there is little erosion and almost no silting of streams.

Most of the streams sampled are typical of the types which have their origins and entire courses confined to the South Atlantic coastal plain. They are usually clear and vary in color from that of drinking water (at or near their headwaters) to that of strong tea. The color stems from dissolved organic material. At a few stations (mostly stagnant pools) the water was milky or muddy. Bottom

types encountered include muck, sand, gravel, and organic debris. The bottoms in still areas are mostly muck, but in areas of flowing water the bottoms are generally composed of soft to firm sand. At a few localities the bottom contains considerable gravel. Dead trees, limbs, stumps, and leaves make up an integral part of the bottom of many streams. In most cases, the streams are surrounded by swamps, predominantly gum-cypress, but which possess a great diversity of flora. Aquatic plants are abundant (see Baldwin, 1956, p. 5-12, for a listing of the types of aquatics common to this area).

Ten-foot minnow seines and 20-foot bag seines were used to obtain most specimens. A few collections were made by poisoning with rotenone. Each locality was assigned a station number. Specimens were preserved in the field in 10 percent formalin and were later converted to 38 percent isopropyl alcohol.



Fig. 1. Map of South Carolina with study area crosshatched.

STATIONS

Collections were made from May 30, 1956, to May 25, 1959, mostly during the summers of 1956 and 1957.

Choice of streams seined was limited by ease of access, and by depth of water and width of stream as only 10- and 20-foot seines were used.

The list of stations contains: (1) station number, name of county, locality; (2) drainage; (3) date of collection; and (4) when available, certain environmental data, such as color and clarity of the water, most prominent bottom conditions encountered, and temperature of the water in degrees Fahrenheit at approximately 1 inch below the surface, taken in the shade, where possible.

This study was not primarily ecological in nature, so most environmental observations were qualitative and therefore subject to errors in judgment. These data present a more complete description of the stations than locality alone.

The field study was over a considerably larger area than is herein considered. Collections were made in brackish creeks in addition to fresh water. I am concerned here only with the species occurring in fresh water and have listed only the 120 freshwater stations, retaining the original field station numbers used in the overall survey. The general location of stations is shown in Figs. 1-2.

2. Colleton Co.; where U.S. 15 crosses a creek; 4.5 miles N of Walterboro; 5.5 miles S of Canadys. Ashepoo. May 30, 1956. Dark but clear. Muck.

3. Colleton Co.; creek in North Walterboro crossed by U. S. 15; 3.2 miles N of Walterboro; 1.25 miles S of station 2. Ashepoo. May 30, 1956. Dark but clear. Muck.

4. Colleton Co.; where S-15-88 crosses one fork of the Ashepoo R.; 1.4 miles E of U.S. 17A; 4.5 miles S of Walterboro. Ashepoo. May 30, 1956. Dark but clear. Muck.

8. Bamberg Co.; Clear Pond on unmarked dirt road just off secondary road S-5-59; 0.5 of a mile E of U.S. 601; 6.4 miles SSE of Bamberg. Combahee. June 16, 1956. Clear. Sand and muck.

9. Bamberg Co.; where U.S. 601 crosses Lemon Cr.; 1.25 miles S of Bamberg. Combahee. June 16, 1956. Dark but clear. Sand and muck.

10. Bamberg Co.; where U.S. 301 crosses Grapevine Cr., a tributary of Lemon Cr.; 1.3 miles SW of Bamberg. Combahee. June 16, 1956. Rocks and muck.



Fig. 2. The area studied in southeastern South Carolina. Station locations are indicated by large black dots.

11. Bamberg Co.; where U.S. 301 crosses the Little Salkehatchie R.; 5.4 miles SW of Bamberg. Combahee. June 16, 1956. Dark but clear. Sand and muck.

12. Bamberg Co.; where S-5-75 crosses Colston Branch, a tributary of the Little Salkehatchie R.; 9.4 miles S of Bamberg. Combahee. June 16, 1956. Dark but clear. Sand and muck.

13. Bamberg Co.; where S-5-21 crosses the Little Salkehatchie R.; 11.6 miles SSE of Bamberg; 4.3 miles ENE of Ehrhardt. Combahee. June 25, 1956. Dark but clear. Sand and muck.

14. Bamberg Co.; where S-5-87 crosses Savannah Cr.; 1.5 miles SW of Ehrhardt. Combahee. June 25, 1956. Dark but clear. Sand and muck.
15. Colleton Co.; where S.C. 641 crosses Savannah Branch; 5.2 miles W of Lodge. Combahee. June 25, 1956. Dark but clear. Sand and muck.
16. Allendale Co.-Bamberg Co.; where S.C. 641 crosses the Big Salkehatchie R.; 5.5 miles SW of Ehrhardt. Combahee. June 25, 1956. Dark but clear. Muck.
17. Bamberg Co.; where secondary road S-5-84 crosses Lemon Cr.; 8.8 miles SSE of Bamberg. Combahee. June 26, 1956. Stagnant. Sand and muck.
18. Bamberg Co.; where S-5-84 crosses the Little Salkehatchie R.; 8.9 miles S of Bamberg. Combahee. June 26, 1956. Dark but clear. Sand.
19. Bamberg Co.; where S-5-19 crosses Colston Branch; 5.4 miles E of Olar. Combahee. June 26, 1956. Dark but clear. Sand.
20. Bamberg Co.; on unmarked dirt road just off S.C. 64, where it crosses Birds Branch; 0.6 mile SE of Olar. Combahee. June 26, 1956. Dark but clear. Sand and muck.
21. Bamberg Co.; where U.S. 321 crosses the Little Salkehatchie R.; 1.7 miles NNE of Govan. Combahee. June 26, 1956. Dark but clear. Rocks, sand, and muck.
22. Bamberg Co.; where S.C. 70 crosses the headwaters of the Little Salkehatchie R.; 2.25 miles W of Denmark. Combahee. June 26, 1956. Dark but clear. Sand and muck.
23. Bamberg Co.-Barnwell Co.; where S.C. 64 crosses Georges Cr.; 1.75 miles WNW of Olar. Combahee. June 26, 1956. Dark but clear. Sand and muck.
24. Bamberg Co.-Colleton Co.; where S.C. 217 crosses the Little Salkehatchie R.; 5.25 miles ESE of Ehrhardt. Combahee. June 27, 1956. Sand and muck.
25. Colleton Co.; where S-15-27 crosses Willow Swamp, a tributary of the Little Salkehatchie R.; 4.7 miles SW of Williams. Combahee. June 27, 1956. Stagnant. Sand, muck, and organic debris.
26. Colleton Co.; where S.C. 63 crosses the Little Salkehatchie R. at the first of four bridges W of U.S. 21; 9.7 miles S of Williams. Combahee. June 27, 1956. Stagnant. Muck and organic debris.
27. Colleton Co.; overflow from a pond near Combahee R. just off a dirt road 0.25 of a mile SSE of U.S. 17A; 1.0 mile ENE of Yemassee. Combahee. July 23, 1956. Milky. Muck.
28. Beaufort Co.-Colleton Co.; where dirt road ends at the Combahee R., just off U.S. 17A; 0.7 mile SE of station 27. Combahee. July 23, 1956. Clear. Sand and muck.
29. Colleton Co.; where U.S. 21 crosses Black Cr.; 4.0 miles NW of U.S. 17; 4.5 miles N of Yemassee. Combahee. July 23, 1956. Clear. Sand and muck.

30. Colleton Co.; where S.C. 63 crosses the Little Salkehatchie R. at second bridge W of U.S. 21; 0.1 mile from station 26. Combahee. July 23-24, 1956. Clear. Muck and organic debris.
31. Colleton Co.; where U.S. 17A crosses the Ashepoo R.; 0.5 mile WSW of Walterboro. Ashepoo. July 24, 1956. Dark but clear. Muck and organic debris.
32. Colleton Co.; where U.S. 17 crosses Tupelo Swamp; 3.5 miles E of Ashepoo. Ashepoo. July 24, 1956. Dark but clear. Muck.
35. Hampton Co.; where S.C. 63 crosses a tributary of the Big Salkehatchie R. at second of three bridges; 5.5 miles ENE of Varnville. Combahee. July 26, 1956. Dark but clear. Sand and organic debris.
36. Hampton Co.; where U.S. 601 crosses the Coosawhatchie R.; 1.4 miles WSW of Hampton. Broad. July 26, 1956. Dark but clear. Sand and muck.
37. Allendale Co.-Hampton Co.; where U.S. 321 crosses the Coosawhatchie R.; 2.5 miles WSW of Brunson. Broad. August 13, 1956. Dark but clear. Sand, muck, and organic debris.
38. Hampton Co.; where S-25-49 crosses Blood Hill Cr., a tributary of Coosawhatchie R.; 3.5 miles SW of Brunson. Broad. August 13, 1956. Muddy. Muck.
39. Hampton Co.; where S.C. 363 crosses the Coosawhatchie R.; 2.25 miles WSW of Hampton. Broad. August 13, 1956. Muddy in spots, dark but clear in spots. Muck.
40. Hampton Co.; where S.C. 128 crosses the Coosawhatchie R.; 2.9 miles SSE of Varnville. Broad. August 13, 1956. Muddy in spots, dark but clear in spots. Muck.
42. Hampton Co.; an old mill pond and spillway below pond, crossed by S-25-17; 1.9 miles W of Yemassee. Broad. August 14, 1956. Dark but clear. Muck.
43. Hampton Co.-Jasper Co.; where S-25-36(S-27-87) crosses the Coosawhatchie R.; 3.7 miles SW of Early Branch. Broad. August 14, 1956. Dark but clear. Sand and muck.
44. Jasper Co.; where S.C. 128 crosses Cypress Cr., a tributary of the Coosawhatchie R.; 1.0 mile NNW of Grays. Broad. August 15, 1956. Dark but clear. Muck.
45. Jasper Co.; where S-27-108 crosses Cypress Cr., a tributary of Coosawhatchie R.; 2.3 miles NE of Grays. Broad. August 15, 1956. Dark but clear. Sand and muck.
51. Bamberg Co.; where U.S. 601 crosses the Little Salkehatchie R.; 9.3 miles S of Bamberg. Combahee. September 29, 1956. Clear. Sand and muck.
52. Colleton Co.; where S-15-41 crosses a tributary of the Ashepoo R.; 5.75 miles SE of Walterboro. Ashepoo. May 2, 1957. Clear. Muck. 64°.

54. Beaufort Co.-Colleton Co.; where dirt road ends at the Combahee R., just off U.S. 17A; 0.7 mile SE of station 27. Combahee. May 2, 1957. Clear. Sand and muck. 68°.

55. Barnwell Co.; where S-6-84 crosses Little Salkehatchie Cr.; 1.7 miles SE of Blackville. Combahee. June 10, 1957. Dark but clear. Sand and muck. 64°.

56. Barnwell Co.; spillway below dam at Barnwell State Park, just off S.C. 3; 0.5 mile S of Blackville. Combahee. June 10, 1957. Dark but clear. Rocks, sand, and muck. 74°.

57. Barnwell Co.; where S-6-67 crosses Turkey Cr.; 1.8 miles W of Blackville. Combahee. June 10, 1957. Dark but clear. Muck. 67°.

58. Barnwell Co.; where S-6-168 crosses Turkey Cr.; 1.1 miles N of Barnwell. Combahee. June 10, 1957. Dark but clear. Sand. 67°.

59. Barnwell Co.; where S.C. 28 crosses Buck Cr.; 4.0 miles NW of Barnwell. Combahee. June 10, 1957. Dark but clear. Sand. 67°.

60. Barnwell Co.; where S.C. 28 crosses the spillway of a pond on Rosemary Cr.; 5.75 miles NW of Barnwell. Combahee. June 10, 1957. Dark but clear. Sand. 71°.

61. Barnwell Co.; where S-6-185 crosses Rosemary Cr.; 1.25 miles S of Williston. Combahee. June 11, 1957. Dark but clear. Sand. 68°.

62. Barnwell Co.; where S-6-166 crosses the Big Salkehatchie R.; 3.2 miles NW of Barnwell. Combahee. June 11, 1957. Dark but clear. Sand. 68°.

63. Barnwell Co.; where S-6-20 crosses the Big Salkehatchie R.; 0.25 mile from western boundary of Barnwell. Combahee. June 11, 1957. Dark but clear. Sand and muck. 68°.

64. Barnwell Co.; where S.C. 28-37 crosses the Big Salkehatchie R.; 0.5 mile S of Barnwell. Combahee. June 11, 1957. Dark but clear. Sand and muck. 70°.

65. Barnwell Co.; where S.C. 64 crosses Hagood's Mill Cr.; 1.25 miles SE of Barnwell. Combahee. June 11, 1957. Dark but clear. Sand and muck. 68°.

66. Barnwell Co.; where S-6-14 crosses Hercules Cr.; 4.5 miles ESE of Barnwell. Combahee. June 11, 1957. Dark but clear. Sand. 70°.

67. Allendale Co.; where U.S. 301 crosses Log Branch; 0.9 mile NE of Allendale. Combahee. June 12, 1957. Dark but clear. Sand and muck. 70°.

68. Allendale Co.; where U.S. 321 crosses Jackson Cr., just below Tuten's Mill Pond; 0.75 mile SSE of Sycamore. Combahee. June 12, 1957. Dark but clear. Sand. 78°.

69. Allendale Co.; where S-3-19 crosses the Coosawhatchie R.; 4.0 miles SSE of Allendale. Broad. June 12, 1957. Dark but clear. Sand. 72°.

70. Allendale Co.; where S-3-47 crosses the Coosawhatchie R.; 1.6 miles S of Allendale. Broad. June 12, 1957. Dark but clear. Sand and muck. 72°.

71. Allendale Co.; where S-3-22 crosses the Coosawhatchie R.; 0.3 mile SSE of Allendale. Broad. June 12, 1957. Dark but clear. Sand and muck. 78°.
73. Jasper Co.; where S.C. 336 crosses a tributary of the New R.; 2.0 miles SW of Ridgeland. New. June 13, 1957. Dark but clear. Sand and clay. 77°.
74. Barnwell Co.; where S.C. 70 crosses Toby Cr.; 1.75 miles NE of Barnwell. Combahee. July 8, 1957. Clear. Sand. 70°.
75. Barnwell Co.; where an unmarked dirt road crosses Hercules Cr.; 3.7 miles E of Barnwell; 0.7 mile W of S-6-14. Combahee. July 8, 1957. Clear. Gravel and sand. 74°.
76. Barnwell Co.; where S.C. 300 crosses Hurricane Cr.; 2.4 miles SE of Barnwell. Combahee. July 8, 1957. Clear. Sand. 72°.
77. Barnwell Co.; where S-6-57 crosses the Salkehatchie R.; 6.25 miles S of Hilda. Combahee. July 8, 1957. Dark but clear. Sand. 77°.
78. Allendale Co.; where S-3-48 crosses a small tributary of the Salkehatchie R.; 3.75 miles ENE of Sycamore. Combahee. July 9, 1957. Clear. Sand. 73°.
79. Allendale Co.; where S-3-18 crosses Jackson Cr.; 2.8 miles NE of Fairfax. Combahee. July 9, 1957. Dark but clear. Sand, muck, and organic debris. 76°.
80. Allendale Co.; where S-3-69 crosses Duck Cr.; 1.8 miles SW of Fairfax. Broad. July 9, 1957. Dark but clear. Sand and muck. 84°.
81. Allendale Co.; where S.C. 641 crosses Miller Cr.; 0.3 mile E of Sycamore. Combahee. July 9, 1957. Dark but clear. Sand and muck. 75°.
82. Allendale Co.-Barnwell Co.; where S.C. 300 crosses Wells Branch; 1.4 miles NW of Ulmers. Combahee. July 10, 1957. Dark but clear. Sand and muck. 74°.
83. Allendale Co.; where S.C. 28 crosses Log Branch; 0.25 of a mile N of Allendale. Combahee. July 10, 1957. Dark but clear. Sand and muck. 80°.
84. Hampton Co.; where S-25-41 crosses Black Cr.; 3.9 miles SW of Hampton. Broad. July 10, 1957. Dark but clear. Gravel, sand, and muck. 79°.
85. Hampton Co.; where an unmarked dirt road W of U.S. 321 crosses Black Cr.; 1.4 miles SW of Luray. Broad. July 10, 1957. Dark but clear. Gravel, sand, muck, and organic debris. 79°.
86. Hampton Co.; where S.C. 631 crosses a tributary of Black Cr., between Estill and Lena; 0.4 mile E of Estill. Broad. July 11, 1957. Dark but clear. Muck. 79°.
87. Hampton Co.; where U.S. 601 crosses Briar Cr.; 4.1 miles NE of Estill. Broad. July 11, 1957. Dark but clear. Gravel and sand. 80°.
88. Hampton Co.; where an unmarked dirt road off S.C. 631 crosses Cypress Cr.; 2.9 miles NE of Furman. Broad. July 11, 1957. Dark but clear. Sand. 75°.

89. Hampton Co.; where an unmarked dirt road crosses Cypress Cr.; 4.5 miles ENE of Furman. Broad. July 11, 1957. Dark but clear. Sand. 77°.
90. Hampton Co.; where S-25-94 crosses John Pen Brook; 0.9 mile E of Furman. Broad. July 12, 1957. Dark but clear. Gravel, sand, muck, and organic debris. 78°.
91. Hampton Co.; where S-25-17 crosses Camp Brook; 3.3 miles ESE of Cummings. Broad. July 12, 1957. Dark but clear. Sand. 80°.
92. Hampton Co.; where S-25-17 crosses a tributary of the Coosawhatchie R.; 3.7 miles W of Early Branch. Broad. July 12, 1957. Muddy. Sand. 76°.
94. Colleton Co.; where S.C. 64 crosses Jones Swamp; 2.25 miles WNW of Walterboro. Ashepoo. July 23, 1957. Dark but clear. Sand, muck, and organic debris. 75°.
95. Colleton Co.; where S-15-49 crosses Jones Swamp; 3.75 miles NW of Walterboro. Ashepoo. July 23, 1957. Muddy in spots; dark but clear in spots. Sand and muck. 74°.
96. Colleton Co.; where S-15-89 crosses Jones Swamp; 2.75 miles NE of Stokes. Ashepoo. July 23, 1957. Dark but clear. Sand and organic debris. 77°.
97. Colleton Co.; where an unmarked dirt road just off S-15-50 crosses Jones Swamp; 4.8 miles NNE of Stokes. Ashepoo. July 23, 1957. Muddy. Sand. 89°.
98. Colleton Co.; where S-15-116 crosses Ireland Cr.; 4.6 miles NNE of Walterboro. Ashepoo. July 23, 1957. Dark but clear. Sand, muck, and organic debris. 75°.
99. Colleton Co.; where U.S. 17A crosses Fuller Swamp; 5.0 miles E of Walterboro. Ashepoo. July 23, 1957. Dark but clear. Sand and muck. 79°.
100. Colleton Co.; where S-15-45 crosses Chessey Cr.; 1.75 miles SSE of Round O. Ashepoo. July 23, 1957. Dark but clear. Sand and muck. 83°.
103. Colleton Co.; where S-15-41 crosses the Ashepoo R. (Ivanhoe Cr.); 3.7 miles NW of Green Pond; 0.8 mile SW of Ritter. Ashepoo. July 24, 1957. Dark but clear. Muck. 86°.
104. Colleton Co.; where S.C. 64 crosses Chessey Cr.; 4.4 miles ENE of Ritter. Ashepoo. July 24, 1957. Dark but clear. Muck. 81°.
105. Colleton Co.; where S.C. 64 crosses Horseshoe Cr.; 4.5 miles NNE of Ashepoo. Ashepoo. July 24, 1957. Dark but clear. Muck. 80°.
106. Colleton Co.; where S-15-41 crosses a tributary of Calfpen Swamp; 3.8 miles NNW of White Hall. Combahee. July 24, 1957. Dark but clear. Sand and muck.
107. Colleton Co.; where S-15-28 crosses Black Cr.; 4.25 miles WNW of Hendersonville. Combahee. July 24, 1957. Dark but clear. Muck.

108. Colleton Co.; where U.S. 21 crosses Sandy Run Cr.; 7.75 miles WNW of Hendersonville. Combahee. July 25, 1957. Dark but clear. Sand.
109. Colleton Co.; where S.C. 64 crosses the Little Salkehatchie R. at the third of three bridges WNW of Bells Crossroads; 3.6 miles W of Ruffin. Combahee. July 25, 1957. Dark but clear. Sand.
112. Colleton Co.; where U.S. 21 crosses Indian Cr.; 4.7 miles E of Islandton. Combahee. July 29, 1957. Dark but clear. Sand and muck. 74°.
113. Colleton Co.; where S-15-33 crosses Indian Cr.; 5.25 miles SSE of Ruffin. Combahee. July 29, 1957. Dark but clear. Sand. 80°.
114. Colleton Co.; where S.C. 63 crosses Deep Cr.; 2.5 miles ESE of Islandton. Combahee. July 29, 1957. Dark but clear. Muck. 75°.
115. Colleton Co.; where S.C. 63 crosses Ricepatch Cr. at Islandton. Combahee. July 29, 1957. Dark but clear. Sand, muck, and organic debris. 75°.
116. Colleton Co.; where U.S. 21 crosses Buckhead Cr.; 1.25 miles N of Ruffin. Combahee. July 31, 1957. Dark but clear. Sand and muck. 74°.
117. Colleton Co.; where S-15-74 crosses Buckhead Cr.; 3.6 miles NNE of Ruffin. Combahee. July 31, 1957. Dark but clear. Sand. 76°.
118. Colleton Co.; where S-15-63 crosses Buckhead Cr.; 2.3 miles NW of Smoaks. Combahee. July 31, 1957. Dark but clear. Sand, muck, and organic debris. 76°.
119. Bamberg Co.-Colleton Co.; where S.C. 217 crosses a tributary of the Little Salkehatchie R.; 0.5 mile W of Padgetts. Combahee. July 31, 1957. Dark but clear. Sand and muck. 76°.
120. Colleton Co.; where S.C. 641 crosses Willow Swamp; 1.75 miles S of Lodge. Combahee. July 31, 1957. Dark but clear. Muck and clay. 76°.
121. Colleton Co.; where S-15-18 crosses Fender Cr.; just W of the center of Lodge. Combahee. July 31, 1957. Dark but clear. Sand and muck. 76°.
122. Colleton Co.; where S-15-18 crosses a tributary of Willow Swamp; 1.5 miles SW of Lodge. Combahee. July 31, 1957. Dark but clear. Sand, muck, and organic debris. 77°.
123. Colleton Co.; where S-15-65 crosses Fuller Swamp; 5.1 miles ENE of Walterboro. Ashepoo. July 31, 1957. Dark but clear. Sand and muck. 78°.
124. Colleton Co.; where U.S. 17A crosses Chessey Cr.; 1.5 miles WNW of Cottageville. Ashepoo. July 31, 1957. Dark but clear. Sand and muck. 77°.
125. Hampton Co.; where S-25-44 crosses Deep Branch; 3.7 miles NNE of Early Branch. Combahee. August 1, 1957. Dark but clear. Sand, muck, and organic debris. 77°.
126. Hampton Co.; where S-25-13 crosses Whippy Swamp; 2.9 miles SSE of Miley. Combahee. August 1, 1957. Dark but clear. Sand and muck. 76°.

127. Hampton Co.; where U.S. 601 crosses Whippy Swamp; 1.25 miles WSW of Miley. Combahee. August 1, 1957. Dark but clear. Sand and muck. 80°.

128. Hampton Co.; where S-25-43 crosses Whippy Swamp; 4.3 miles WNW of Miley. Combahee. August 1, 1957. Dark but clear. Sand, muck, and organic debris. 75°.

129. Jasper Co.; where S.C. 631 crosses Cypress Cr.; 2.0 miles WNW of Grays. Broad. August 12, 1957. Dark but clear. Sand and muck. 76°.

130. Jasper Co.; where S.C. 128 crosses a tributary of the Coosawhatchie R.; 0.8 mile N of Gillisonville. Broad. August 12, 1957. Dark but clear. Sand and muck. 76°.

132. Jasper Co.; where S-27-115 crosses a tributary of the headwaters of the New R.; 4.4 miles NW of Ridgeland. New. August 13, 1957. Dark but clear. Sand. 76°.

133. Jasper Co.; where S-27-115 crosses a tributary of the headwaters of the New R.; 3.7 miles WNW of Ridgeland. New. August 13, 1957. Dark but clear. Muck. 82°.

134. Jasper Co.; where S-27-39 crosses the New R.; 1.8 miles WNW of Ridgeland. New. August 13, 1957. Dark but clear. Sand and muck. 78°.

135. Jasper Co.; where S-27-29 crosses the New R.; 1.5 miles WSW of Ridgeland. New. August 13, 1957. Dark but clear. Sand and muck. 80°.

136. Jasper Co.; where U.S. 17 crosses the New R.; 1.6 miles SW of Switzerland. New. August 13, 1957. Dark but clear. Sand and muck. 78°.

138. Jasper Co.; where S.C. 128 crosses Beaver Dam Cr.; 1.3 miles SE of Grays. Broad. August 14, 1957. Dark but clear. Muck. 78°.

139. Jasper Co.; where an unmarked dirt road just off U.S. 17 crosses Bees Cr.; 2.25 miles NNE of Ridgeland. Broad. August 14, 1957. Dark but clear. Muck. 84°.

140. Jasper Co.; where U.S. 17 passes alongside a drainage ditch, a tributary of the New R.; 2.2-2.3 miles SW of Switzerland. New. August 14, 1957. Dark but clear. Muck. 95°.

160. Colleton Co.; where S-15-41 crosses the Ashepoo R. (Ivanhoe Cr.); 3.7 miles NW of Green Pond; 0.8 mile SW of Ritter. Ashepoo. May 25, 1959. Dark but clear. Muck. (Same locality as station 103).

SPECIES OF FISH

No previous extensive work on the fishes of this area has been done. In several collections, Freeman (1954) obtained 14 species from a pond and a stream, north branch of the Salkehatchie River, Barnwell County, in the Atomic Energy Commission's Savannah River Plant Area.

I collected and identified approximately 13,850 specimens representing 9 orders, 17 families, 31 genera, and 53 species. A

number of specimens were too small or too immature to be readily relegated to any species. Included in this group were members of the following genera: *Erimyzon*, *Lepomis*, *Enneacanthus*, *Elassoma*, and *Etheostoma* (*Hololepis*). The bulk of the collections is in the Charleston Museum, Charleston, South Carolina; but some specimens have been placed in the U.S. National Museum, Washington, D.C.

The list of species contains: order; family; scientific name and usually at least one common name; list of records of the species from the study area, if it has been previously reported (occasionally, after the list of previous records, references are included to works giving especially useful information on the particular species); number of specimens collected; and list of the stations from which the species was obtained.

ORDER SEMIONOTIFORMES

Family Lepisosteidae

Lepisosteus osseus (Linnaeus). Longnose gar

37 specimens, from stations 26, 37, 84, 86, 91, 99, 104, 105, 109, 112, 116-118, 120-121, 126, 128, 134.

ORDER AMIIFORMES

Family Amiidae

Amia calva Linnaeus. Bowfin; Mudfish

6 specimens, from stations 21, 88, 100, 129, 136, 138.

ORDER CLUPEIFORMES

Family Umbridae

Umbra pygmaea (DeKay). Eastern mudminnow

25 specimens, from stations 52 and 100.

Family Esocidae

Esox americanus Gmelin. Redfin pickerel

Esox americanus Gmelin. Freeman, 1954, p. 133, 148, Salkehatchie River.

698 specimens, from stations 2-4, 9-15, 17-26, 30, 32, 35-40, 43-45, 52, 56-57, 59, 64, 69, 73-74, 76, 78-91, 94-98, 100, 103-104, 108-109, 112-127, 130, 133-135, 138-139, 160.

Esox niger LeSueur. Chain pickerel

Esox niger LeSueur. Freeman, 1954, p. 134, 148, Salkehatchie River.

142 specimens, from stations 11, 13, 17-18, 21, 24, 29, 35, 39-40, 43-45, 54, 77, 91, 94-95, 98, 103, 105, 107-109, 112, 114, 116-118, 120-122, 125, 129-130, 160.

ORDER CYPRINIFORMES

Family Cyprinidae

Notemigonus crysoleucas (Mitchill). Golden shiner

Notemigonus crysoleucas boscii (Valenciennes). Fowler, 1945, p. 168-170, Ashepoo River.

Notemigonus boscii (Valenciennes). Fowler, 1935, p. 10-11, New River (probably).

1,068 specimens, from stations 2, 9-12, 14-15, 19, 25-26, 30, 32, 38-40, 43-45, 60, 71, 73, 80, 83-92, 95, 97-100, 103-106, 112, 114-117, 119, 122-127, 129-130, 132-136, 138-140.

Opsopoeodus emiliae Hay. Pugnose minnow

Opsopoeodus emiliae Hay. Anderson, MS, Combahee River (specimens listed below).

26 specimens, from stations 14, 17, 18, 24, 35, 67, 79, 81.

Notropis stonei Fowler. Sailfin shiner

Notropis stonei Fowler. Suttkus, 1951, p. 83-84, Combahee and Broad Rivers.

R. D. Suttkus now considers *N. stonei* as a subspecies of *N. hypselopterus* (personal communication).

Erogala formosa (Putnam). Fowler, 1935, p. 16, Combahee River.

980 specimens, from stations 9, 11-24, 29, 35, 37, 55, 57-59, 61-63, 65-67, 69-70, 74-79, 81-82, 84, 89, 109, 126, 128.

Notropis cummingsae Myers. Dusky shiner

Notropis c. cummingsae Myers. Hubbs and Raney, 1951, p. 6-7, Combahee River.

1,125 specimens, from stations 9, 11-19, 21-24, 30, 35, 43, 54, 58-63, 65-67, 75-77, 79, 81-82, 109, 126, 128.

Notropis chalybaeus (Cope). Ironcolor shiner

Notropis chalybaeus (Cope). Fowler, 1945, p. 30, Little Salkehatchie River.

Hydrophlox chalybaeus (Cope). Fowler, 1935, p. 14, Combahee River.

Cope, 1869, p. 383.

1,149 specimens, from stations 9, 10-19, 21-25, 30, 35-37, 39, 43-45, 51, 57, 60, 64, 71, 75, 77, 79, 81, 84-85, 88, 109, 112, 119, 126-127.

Notropis petersoni Fowler. Coastal shiner

219 specimens, from stations 9-19, 21-25, 30, 35, 37, 54, 57, 60, 62-63, 67, 79, 81-82, 126, 128.

Notropis maculatus (Hay). Taillight shiner

59 specimens, from stations 12, 25, 30, 32, 35, 40, 45, 51, 84, 109, 112, 117, 121, 126-128.

Family Catostomidae

Minytrema melanops (Rafinesque). Spotted sucker

Minytrema melanops (Rafinesque). Fowler, 1935, p. 10, Combahee River. 11 specimens, from stations 15, 30, 57, 74, 84.

Erimyzon sp.

154 specimens, from stations 25, 30, 40, 70-71, 73, 77, 80, 89, 94-96, 103, 105, 108-109, 112, 115-116, 125-126, 129, 134.

Erimyzon suetta (Lacépède). Lake chubsucker

Erimyzon suetta (Lacépède). Fowler, 1935, p. 9, New (probably) and Combahee Rivers.

Erimyzon s. suetta (Lacépède). Fowler, 1945, p. 168, Great Swamp Creek, 49 miles south of Charleston on U.S. 17 (Ashepoo, probably). Freeman, 1954, p. 134, 148, Salkehatchie River.

100 specimens, from stations 26, 61, 83, 85, 87-88, 100, 117, 120, 122, 130, 132-133, 135-136, 140.

Erimyzon oblongus (Mitchill). Creek chubsucker

263 specimens, from stations 2, 9-11, 19, 23, 38, 55, 84-86, 98, 119, 121-123, 127.

Family Ictaluridae

Ictalurus catus (Linnaeus). White catfish

1 specimen, from station 105.

Ictalurus platycephalus (Girard). Flat bullhead

1 specimen, from station 30.

Ictalurus natalis (LeSueur). Yellow bullhead

Ameiurus natalis (LeSueur). Fowler, 1935, p. 18, Combahee River.

81 specimens, from stations 4, 27, 29, 38, 40, 43-44, 68, 80, 84, 86-88, 95, 99, 103-104, 108, 112, 116-117, 124-125, 129-130, 139.

Ictalurus nebulosus (LeSueur). Brown bullhead
12 specimens, from stations 59 and 60.

Noturus gyrinus (Mitchill). Tadpole madtom

Schilbeodes mollis (Hermann). Freeman, 1954, p. 138, 148, Salkehatchie River. (*S. mollis* is considered a synonym of *N. gyrinus*, personal communication with Reeve M. Bailey.)

Hubbs and Raney, 1944, p. 25-26.
46 specimens, from stations 4, 21, 30, 38, 44, 57, 64, 66, 68, 105, 116.

Noturus leptacanthus Jordan. Speckled madtom

7 specimens, from stations 23, 58-59, 81.

ORDER ANCUILLIFORMES

Family Anguillidae

Anguilla rostrata (LeSueur). American eel

Muraena bostonensis LeSueur. Fowler, 1945, p. 167, Combahee River.
56 specimens, from stations 4, 13-14, 24, 51, 69-70, 81, 88, 99, 123-124, 126.

ORDER CYPRINODONTIFORMES

Family Cyprinodontidae

Fundulus chrysotus (Günther). Golden topminnow

Zygonectes chrysotus (Günther). Fowler, 1935, p. 20-21, New River (Probably).

Brown, 1957, p. 70-73, p. 75.

Miller, 1955, p. 10.

28 specimens, from stations 103 and 160.

Fundulus notti (Agassiz). Starhead topminnow

Fundulus notti lineolatus (Agassiz). Brown, 1958, p. 480, (Colleton County; Ireland Creek, tributary Ashepoo River), (Bamberg County; Little Salkehatchie River between Denmark and Hilda, Route 70), (Jasper County; Great Swamp, tributary New River).

Fundulus dispar lineolatus (Agassiz). Freeman, 1954, p. 139, 148, Salkehatchie River.

Brown, 1957, p. 70-73, p. 76.

Miller, 1955, p. 10.

82 specimens, from stations 9, 25, 27, 39-40, 42, 44-45, 75, 83, 86, 91, 94-95, 97-98, 103, 107-108, 112-113, 116-117, 125, 127, 129, 133-135, 140.

Family Poeciliidae

Gambusia affinis (Baird and Girard). Mosquitofish

Gambusia holbrooki (Agassiz). Fowler, 1945, p. 173, Combahee River and Great Swamp Creek, 49 miles south of Charleston on U.S. 17 (probably Ashepoo drainage).

Gambusia affinis holbrooki (Girard). Freeman, 1954, p. 139, 148, Salkehatchie River.

3,517 specimens, from stations 3, 4, 8-10, 12-15, 17, 19, 21, 23-25, 27-32, 35-40, 42-45, 51-52, 60, 64, 67-69, 71, 77, 80-81, 84-88, 90-91, 94-100, 103-106, 108-109, 112, 114, 116-117, 119-120, 122-124, 126-127, 129-130, 132-136, 138-140, 160.

Mollienesia latipinna LeSueur. Sailfin molly

3 specimens, from station 32.

Heterandria formosa Agassiz. Least killifish

27 specimens, from stations 32, 52, 103, 106, 136, 160.

Family Amblyopsidae

Chologaster cornuta Agassiz. Swampfish

6 specimens, from stations 2, 30, 73, 160.

ORDER PERCOPSIFORMES

Family Aphredoderidae

Aphredoderus sayanus (Gilliams). Pirate perch

Aphredoderus sayanus (Gilliams). Freeman, 1954, p. 139, 148, Salkehatchie River.

404 specimens, from stations 2, 9, 13-15, 17, 19, 21-25, 29-30, 32, 35-36, 38-40, 43-45, 51-52, 57, 59, 61, 64, 69-71, 77-87, 89, 94-96, 100, 103-105, 108-109, 112-114, 116-117, 119-122, 124-127, 129-130, 132, 134-136, 139, 160.

ORDER PERCIFORMES

Family Centrarchidae

Micropterus salmoides (Lacépède). Largemouth bass

Micropterus s. salmoides (Lacépède). Freeman, 1954, p. 140, 148, Salkehatchie River.

Bailey and Hubbs, 1949, p. 18-20.

Hubbs and Bailey, 1940, p. 37-39.

122 specimens, from stations 8-9, 19, 27-28, 30, 38, 40, 42, 45, 56, 60, 68, 71, 74, 77, 79-80, 84, 91, 103-104, 109, 112, 116-117, 119-120, 125-126, 128-129, 132-136, 160.

Chaenobryttus gulosus (Cuvier). Warmouth

Chaenobryttus gulosus (Cuvier). Fowler, 1935, p. 25, Combahee River.

Chaenobryttus coronarius Bartram. Freeman, 1954, p. 140, 148, Salkehatchie River.

124 specimens, from stations 2, 9, 11, 13, 19, 21, 24-25, 30, 32, 38-40, 43-45, 51-52, 56, 59-60, 69, 75, 79, 86, 95, 100, 104-105, 112, 116, 121, 124-125, 133-136, 138, 160.

Lepomis sp.

14 specimens, from stations 29, 39, 68, 84, 88, 109, 132, 134.

Lepomis punctatus (Valenciennes). Spotted sunfish

34 specimens, from stations 12-15, 17, 22, 24, 32, 35-36, 51, 58, 69, 80-81, 96, 99, 109.

Lepomis gibbosus (Linnaeus). Pumpkinseed

11 specimens, from stations 15, 25, 26, 32, 122.

Lepomis microlophus (Günther). Redear sunfish; Shellcracker

1 specimen, from station 56.

Lepomis auritus (Linnaeus). Redbreast

173 specimens, from stations 2, 9, 14, 18-19, 22, 25, 27-28, 37-38, 42-43, 55, 57, 79, 82-85, 89, 95, 97-98, 105, 109, 117, 119-120, 123, 126, 128, 130, 133-134, 136, 140.

Lepomis marginatus (Holbrook). Dollar sunfish; Redeye

[?] *Lepomis megalotis* (Rafinesque). Fowler, 1935, p. 24, New (probably) and Combahee rivers.

Lepomis marginatus (Holbrook). Freeman, 1954, p. 141, 148, Salkehatchie River.

165 specimens, from stations 2-3, 10-12, 22-23, 25, 30, 36-40, 43, 55, 59-61, 75, 80-82, 84, 86, 89, 96-98, 100, 112, 115, 117-118, 120-123, 126-127, 133-135, 140.

Lepomis macrochirus Rafinesque. Bluegill; Bream

Lepomis macrochirus purpurescens Cope. Freeman, 1954, p. 142, 148, Salkehatchie River.

508 specimens, from stations 8-13, 15, 17, 19, 21-22, 24-27, 30, 39-40, 42-43, 51, 54-56, 59-60, 67-69, 71, 74, 80, 82-83, 85, 91, 98, 109, 121-122, 125-127, 129-130, 133, 136, 140.

Enneacanthus sp.

17 specimens, from stations 83, 86, 95, 104.

Enneacanthus obesus (Girard). Banded sunfish

168 specimens, from stations 2, 22, 25-26, 31-32, 36-37, 39, 43-44, 69, 87, 96, 98-100, 103, 105-106, 114-117, 123-124, 133, 138-139.

Enneacanthus gloriosus (Holbrook). Bluespotted sunfish

41 specimens, from stations 21, 29, 37, 45, 69, 91, 94, 108, 127, 134-136, 160.

Enneacanthus chaetodon (Baird). Blackbanded sunfish

2 specimens, from station 29.

Pomoxis nigromaculatus (LeSueur). Black crappie

10 specimens, from stations 40, 80, 105, 140.

Acantharchus pomotis (Baird). Mud sunfish

45 specimens, from stations 21, 26, 30, 38-40, 43, 52, 86-87, 90-91, 94, 99, 104, 106, 124, 133, 160.

Centrarchus macropterus (Lacépède). Flier

Centrarchus macropterus (Lacépède). Freeman, 1954, p. 142, 148, Salkehatchie River.

1,724 specimens, from stations 2, 9-12, 14-15, 19, 26, 29, 32, 36-40, 42-44, 52, 59-60, 69, 71, 73, 79-80, 82-92, 94-95, 97, 99-100, 103-106, 108, 112-117, 119, 123-125, 127, 129-130, 132-136, 138-139.

Elassoma sp.

1 specimen, from station 13.

Elassoma zonatum Jordan. Banded pygmy sunfish

Elassoma zonatum Jordan. Freeman, 1954, p. 143, 148, Salkehatchie River.

15 specimens, from stations 12, 29-30, 44, 69, 85, 87, 103-104, 106, 109, 117.

Elassoma evergladei Jordan. Everglades pygmy sunfish

Böhlke, 1956, p. 4.

3 specimens, from stations 21, 87, 139.

Family Percidae

Percina nigrofasciata (Agassiz). Blackbanded darter

[?] *Alcordius peltatus* (Cope). Fowler, 1935, p. 22, Combahee River.

[?] *Hadropterus peltatus crassus* (Jordan and Brayton). Fowler, 1945, p. 195, Combahee River.

Percina n. nigrofasciata x *Percina n. raneyi* (Intergrades). Crawford, 1956, p. 50, Combahee River system.

7 specimens, from stations 15, 24, 58, 75, 79, 82.

Etheostoma olmstedi Storer.

Etheostoma olmstedi. Cole, 1958, p. 1156, Santee-Cooper system southward to the St. Johns River.

71 specimens, from stations 9, 12, 14-15, 17-18, 21-24, 59, 62, 66-67, 79, 81-82.

Etheostoma fricksium Hildebrand. Savannah darter

Etheostoma fricksium Hildebrand. Anderson, MS, Combahee River (the specimens listed below).

Hildebrand, 1923, p. 7-8.

11 specimens, from stations 15, 23-24, 59, 76, 81-82.

Etheostoma (Hololepis) sp.

1 specimen, from station 82.

Etheostoma serriferum (Hubbs and Cannon). Sawcheek darter

Hololepis serrifer Hubbs and Cannon. Hubbs and Cannon, 1935, p. 31-36, Combahee River. Fowler, 1945, p. 196, Combahee River.

Collette, 1962, p. 125-133.

7 specimens, from stations 30, 36, 105, 109, 116.

Etheostoma fusiforme barratti (Holbrook). Scalyhead darter

Boleichthys fusiformis (Girard). Fowler, 1935, p. 23, Combahee River.

Hololepis barratti (Holbrook). Hubbs and Cannon, 1935, p. 54-62, Combahee River. Fowler, 1945, p. 195, Combahee River.

Etheostoma barratti (Holbrook). Freeman, 1954, p. 144, 148, Salkehatchie River.

Collette, 1962, p. 150-190.

5 specimens, from stations 52, 69, 95.

Family Ephippidae

Chaetodipterus faber (Broussonet). Atlantic spadefish

Chaetodipterus faber (Broussonet). Anderson, MS, Ashepoo River (the specimen listed below).

Hildebrand and Cable, 1938, p. 534-543.

1 specimen, from station 103.

Family Atherinidae

Labidesthes sicculus (Cope). Brook silverside

237 specimens, from stations 9, 11-13, 17, 21-22, 28, 30, 42-43, 45, 54, 67-68, 80, 91, 94, 105, 112, 126, 128-129, 133-134.

ORDER PLEURONECTIFORMES

Family Soleidae

Trinectes maculatus (Bloch and Schneider). Hogchoker
Hubbs, 1932, p. 19-21.
1 specimen, from station 105.

STATION OF SPECIAL INTEREST

It is impossible to discuss all collecting localities at length, but one is worthy of comment. Station 32 (Tupelo Swamp, Ashepoo drainage, Colleton County, July 24, 1956) is a typical, small, black-water creek. On the date of collection the stream was not flowing and was $\frac{1}{2}$ to $3\frac{1}{2}$ feet deep and 10 to 75 feet wide. Literally hundreds of fish were heard and observed breaking the surface of the water beneath the highway bridge and in its vicinity, and many *Gambusia* were seen swimming at the surface. About six or eight seine hauls were made, mostly beneath the bridge. Collecting at this station did not yield a great number of species, but many specimens were taken, particularly *Gambusia* and *Centrarchus*. *Centrarchus macropterus* was the species largely heard and observed breaking the surface of the water. The following list gives the species and numbers of specimens collected: *Esox americanus*, 3; *Notemigonus crysoleucas*, 43; *Notropis maculatus*, 2; *Gambusia affinis*, 2,020 ±; *Mollienesia latipinna*, 3; *Heterandria formosa*, 5; *Aphredoderus sayanus*, 1; *Chaenobryttus gulosus*, 34; *Lepomis punctatus*, 1; *Lepomis gibbosus*, 4; *Enneacanthus obesus*, 4; and *Centrarchus macropterus*, 542.

DISCUSSION

Twenty-five species were collected that have not been reported from the area. Many other species were found that have not been recorded from one or more of the drainages. Table 1 gives a compilation of new records.

All freshwater fish reported in the literature for this area were collected in at least one of the drainages studied. *Fundulus chrysotus* and *Etheostoma fusiforme barratti* have been recorded from drainages in the area other than those in which I found them (*Fundulus chrysotus* from New and *Etheostoma fusiforme barratti* from Combahee).

TABLE 1
New records of fish

Species	Entire Area	Ash- poo	Comba- hee	Broad	New
<i>Lepisosteus osseus</i>	X	X	X	X	X
<i>Amia calva</i>	X	X	X	X	X
<i>Umbra pygmaea</i>	X	X			
<i>Esox americanus</i>		X		X	X
<i>Esox niger</i>		X		X	
<i>Notemigonus crysoleucas</i>			X	X	
<i>Notropis cummingsae</i>				X	
<i>Notropis chalybaeus</i>				X	
<i>Notropis petersoni</i>	X		X	X	
<i>Notropis maculatus</i>	X	X	X	X	
<i>Minytrema melanops</i>				X	
<i>Erimyzon suetta</i>				X	
<i>Erimyzon oblongus</i>	X	X	X	X	
<i>Ictalurus catus</i>	X	X	X		
<i>Ictalurus platycephalus</i>	X		X		
<i>Ictalurus natalis</i>		X		X	
<i>Ictalurus nebulosus</i>	X		X		
<i>Noturus gyrinus</i>		X		X	
<i>Noturus leptacanthus</i>	X		X		
<i>Anguilla rostrata</i>		X		X	
<i>Fundulus chrysotus</i>		X			
<i>Fundulus notti</i>				X	
<i>Gambusia affinis</i>				X	X
<i>Mollienesia latipinna</i>	X	X			
<i>Heterandria formosa</i>	X	X	X		X
<i>Chologaster cornuta</i>	X	X	X		X
<i>Aphredoderus sayanus</i>		X		X	X
<i>Micropterus salmoides</i>		X		X	X
<i>Chaenobryttus gulosus</i>		X		X	X
<i>Lepomis punctatus</i>	X	X	X		
<i>Lepomis gibbosus</i>	X	X	X		
<i>Lepomis microlophus</i>	X		X		
<i>Lepomis auritus</i>	X	X	X	X	X
<i>Lepomis marginatus</i>		X		X	
<i>Lepomis macrochirus</i>		X		X	X
<i>Enneacanthus obesus</i>	X	X	X	X	X
<i>Enneacanthus gloriosus</i>	X	X	X	X	X
<i>Enneacanthus chaetodon</i>	X		X		X
<i>Pomoxis nigromaculatus</i>	X	X		X	
<i>Acantharchus pomotis</i>	X	X	X	X	X
<i>Centrarchus macropterus</i>		X		X	X
<i>Elassoma zonatum</i>		X		X	
<i>Elassoma evergladei</i>	X		X	X	
<i>Etheostoma serriferum</i>		X		X	
<i>Etheostoma fusiforme barratti</i>		X		X	
<i>Labidesthes sicculus</i>	X	X	X	X	
<i>Trinectes maculatus</i>	X	X			X

With the exception of *Notemigonus crysoleucas* in the Ashepoo and New drainages and *Notropis maculatus* in the Ashepoo, there was a scarcity of cyprinids in these two river drainages. Two factors may have contributed to this. Experience has shown that the greater the number of areas sampled from a given drainage the greater the number of species one can expect to capture until all species occurring in the drainage have been collected. There were only 19 stations in the Ashepoo drainage and 7 in the New drainage, as compared with 68 in the Combahee drainage and 26 in the Broad drainage. From the smaller number of stations seined in the Ashepoo and New drainages it might be expected that the total number of species collected from these systems would be smaller than the total number from the Combahee and Broad drainages. There was, however, not nearly so marked a difference in the number of centrarchid species obtained from the various drainages. Probably a more valid reason for the dearth of cyprinids in the Ashepoo and New is that these drainages apparently lack stream environments which are especially conducive to habitation by cyprinids. The headwaters of the Combahee and Broad drainages flow through areas with considerably more elevation differential than do the headwaters of the Ashepoo and New drainages and, as a consequence, the Combahee and Broad drainages (especially the Combahee) have many relatively fast, small creeks, which may be called "minnow" streams.

One specimen of *Trinectes maculatus* was taken in fresh water in the Ashepoo drainage. Hildebrand and Cable (1938, p. 630) and Gunter (1957, p. 14) mention several records of *T. maculatus* occurring in fresh water.

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